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Cold War Context Statement Sandia National Laboratories California Site

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2.0 The Cold War

The Cold War—the forty-five year long struggle between the United States and the Soviet Union—and the nuclear arms race that accompanied it serve as the primary backdrop for the activities at SNL/CA from its inception until the 1990s. It is against this backdrop that we can most clearly evaluate any work of historical significance within SNL/CA's activities during this period.

The Cold War was not a single monolithic event and can be viewed as evolving in several stages over time. From the point of view of nuclear weapons history and the arms race, it is easiest to divide the Cold War along the lines of policy responses. The following list of policies includes approximate dates—policies overlapped in periods of transition.

- Early efforts at international control (1945-1948);
- Truman's containment efforts and early stockpile growth (1949-1952);
- Eisenhower's New Look, with a dependence on Massive Retaliation (1953-1960);
- Kennedy's Flexible Response (1961-1964);
- Johnson's return to an emphasis on deterrence with Assured Destruction (1965-1969);
- Nixon's détente and the return to an emphasis on a war-fighting capability, with first strike as well as tactical weapons and increased conventional forces (1970-1980);
- Reagan's increases in war-fighting capability (1981-1988); and
- the end of the Cold War (1989).

Within the period of each policy, other developments regarding nuclear strategy and nuclear weapons technology occurred, such as Atoms for Peace and Project Plowshare. Nevertheless, the central strategic policies help periodize the Cold War era.

The main periods of the Cold War are summarized below. The discussion is based on the historical literature pertaining to the Cold War. References for each Cold War event and turning point mentioned are not provided, as relevant sources are included in the bibliography. More detail regarding Cold War events and policy development can be found in those sources.

2.1 The Immediate Postwar Period

During the 1940s, nuclear weapons moved to the forefront of U.S. policy decisions, but this was neither an immediate nor an inevitable move. As the nation demobilized after World War II ended on August 14, 1945, there was no clear U.S. policy on the development or use of nuclear weapons. The primary development work, performed at Los Alamos during this period, consisted of some new design work and attempts to stabilize production.

But from a purely military standpoint, the atomic bomb was still just another bomb—more efficient perhaps than conventional explosives carried by fleets of airplanes, but still fitting into the vision of strategic bombing that had evolved during the war. The air force, for example, saw no changes necessary in its force structure as a consequence of this new weapon.

Some American scientists believed as early as 1946 that the Soviets might develop their own bomb by 1949. However, there was considerable disagreement among American policy planners over how long a Soviet bomb project would take; for example, General Leslie Groves, commanding officer of the Manhattan Engineer District, testified before Congress that it would take the Soviets twenty years to duplicate the American success.

For a variety of reasons, the United States demobilized from the war relatively quickly. The military budget was capped at lower and lower levels, and the Truman administration briefly considered proposals to control nuclear weapons internationally. But when it became clear that the Soviet Union was intent on entering nuclear arms control agreements only from a position of equality with the United States, preserving the American monopoly, or at least overwhelming superiority, in nuclear weapons became a cornerstone of American military policy. And by then, tensions with the Soviet Union were rising on other fronts.

2.2 Increasing Post-War Tension

In March of 1946, former British Prime Minister Winston Churchill, speaking at Westminster College in Fulton, Missouri, first promoted the image of an “Iron Curtain” that was beginning to divide Europe, and ultimately the entire world, into pro-Soviet and pro-West spheres of influence. By that point, increasing tension between the Soviet Union and its World War II allies had seriously damaged East-West relations, and positions on both sides had hardened into outright animosity. Although efforts continued, particularly through the United Nations, to achieve international disarmament in the postwar period, there was little progress. As a consequence, an increasing portion of American foreign and military policy became centered on nuclear weapons.

2.3 Atomic Energy Commission

Congress, the military, and civilian scientists and engineers struggled with the issue of military vs. civilian control of atomic energy immediately after the war. The debate was heated and occasionally acrimonious, and resulted in the Atomic Energy Act of 1946. The Atomic Energy Act left atomic energy in civilian hands, but required close cooperation and interaction with the military. The debate over the custody of actual weapons continued throughout the Cold War period, and even persists today.

The Act created an Atomic Energy Commission (AEC) to oversee all elements of atomic energy technology in the United States. On January 1, 1947, all property and personnel of the Manhattan Engineer District were transferred to the Atomic Energy Commission. However, to make sure that military needs were met—atomic energy had only been used as a weapon to this point, after all—the AEC had a liaison committee of military officials, the Military Liaison Committee (MLC). This arrangement created what is referred to as “dual-agency responsibility” for the weapons and their uses: the AEC controlled atomic energy, and the AEC and the military were jointly responsible for nuclear weapons.

In addition, the Act established a General Advisory Committee (GAC) within the AEC, made up of prominent scientists and engineers. The GAC provided technical advice to the AEC and helped evaluate research and development programs and proposals.

2.4 Cooling Relationship between U.S. and USSR

Several crises in 1948 and 1949 served to accelerate the chilling of relations between the United States and the Soviet Union. The Soviet attempt physically to blockade the city of Berlin in 1948 was the first major Cold War crisis, and also had direct effects on American nuclear strategy. The tensions stemming from the crisis resulted in a revised production system that aimed to quadruple the U.S. nuclear stockpile. In addition, a review of U.S. military nuclear readiness during the Berlin crisis found a “discouraging” level of preparedness; strategic bombing and nuclear weapons proponent General Curtis LeMay was consequently put in charge of Strategic Air Command.

In response to the growing Soviet influence in eastern Europe, the United States formed the North Atlantic Treaty Organization (NATO) in early 1949. NATO was a collective security alliance between the U.S. and most of the nations of western Europe, and served as a guarantee of American military support, including the use of nuclear weapons, in the event of Soviet military expansion westward. In response, the Soviet Union and its eastern European allies formed the Warsaw Pact shortly thereafter.

Also in 1949, the Soviets detonated their first atomic bomb. Later that same year, Chinese Communists led by Mao Zedong succeeded in toppling the nationalist government in that country, establishing the Peoples’ Republic of China. While American policy analysts had long predicted both of these events, their rapid succession left many in the American public (which had been inadequately prepared for these events by the Truman administration) clamoring for a dramatic response. Truman quickly directed the AEC to consider developing the thermonuclear, or hydrogen “super” bomb.

2.5 Korean War

The largest and most important crisis in the early Cold War era was the conflict in Korea. After several years of diplomatic conflict over whether or how North and South Korea, partitioned by the Allies at the end of World War II, should be re-unified, the pro-Communist North Koreans attempted to re-unite the country by force of arms in June 1950. While we now know that this action was taken by the North Korean government largely without authorization or coordination from Moscow or Beijing, at the time it appeared to be a clear example of Communist expansion in Asia.

The Truman administration quickly committed the United States to containing this apparent case of Soviet expansion. Eventually, a U.N. force, comprised overwhelmingly of American military personnel, would fight in Korea against both North Korean and Chinese forces.

In the spring of 1951, concerned with the tenuous military situation in Korea, President Truman authorized, for the first time in the AEC’s history, the transfer of nuclear weapons to the Air Force for deployment to Asia.

Nuclear weapons were not used in Korea. There were several reasons for this. The most important was probably the conclusion that conventional military means could be employed as successfully. In addition, the Truman administration was determined not to draw the Soviets directly into the war, and concerned that an ineffective use of nuclear weapons would undercut their deterrence value. This last proved critical numerous times in discussions of potential uses for nuclear weapons. However, the Truman administration continued preparations to use nuclear weapons in the future, if necessary.

The war in Korea also accelerated the push for tactical nuclear weapons, which were tested at the Nevada Test Site in 1951. The nuclear stockpile grew, and by 1953, the U.S. arsenal contained over 1,100 weapons, up from approximately 50 just five years earlier.¹⁰

2.6 New Look

Over the course of his two terms as President, Dwight Eisenhower re-shaped American nuclear policy. As Supreme NATO Commander in Europe, Eisenhower had earlier paved the way for the forward deployment of American nuclear weapons in Europe. As President, he oversaw the growth of the nuclear stockpile to over 18,000 weapons by 1960. During his eight years in the White House, programs were undertaken to bring Intercontinental Ballistic Missiles (ICBMs) and Submarine Launched Ballistic Missiles (SLBMs) into the arsenal.

But most importantly, Eisenhower, concerned about the growing cost of a large, conventional military, became increasingly attracted to the nuclear option. The Eisenhower administration's "New Look" was a new military posture for the United States that was heavily dependent on the threat of massive retaliation with nuclear weapons in response to Soviet aggression. To add teeth to the language of deterrence by massive retaliation, Eisenhower diversified the stockpile to include more tactical nuclear weapons, and also adopted the policy that, in the event of war, the United States would consider nuclear weapons available for use as any other munition.

2.7 Peak of Cold War

The latter years of Eisenhower's presidency and the first years of Kennedy's saw further transformations in the American nuclear policy. By the end of the 1950s, the policy of massive retaliation was beginning to look overly rigid and clumsy, especially after it became clear that the United States was not willing to engage in full-scale nuclear war over relatively small international crises (like the periodic shelling of the islands of Quemoy and Matsu by the Peoples' Republic of China). The successful Soviet launch of Sputnik in 1957 led many Americans to believe that the United States' nuclear superiority was at risk; even if we had more bullets, the Soviets now appeared to have a bigger gun. The doctrine of massive retaliation was gradually yielding to the reality of mutual assured destruction (MAD), which essentially meant both sides had enough firepower to completely destroy one another should a nuclear war begin. This was the

¹⁰ "Declassification of Selected Nuclear Weapon Stockpile Information," *Sandia Classification Bulletin*, no. 94-8, November 1, 1994, 9.

key thinking behind the idea of deterrence for most of the Cold War—that is, that both sides knew that initiating nuclear war would mean annihilation for both.

In the last years of his administration, Eisenhower hoped to end the Cold War and the arms buildup through negotiation with the Soviet Union. His final hopes for such an achievement died when the U.S. U-2 surveillance aircraft carrying Francis Gary Powers was shot down by the Soviets in 1960.

John Kennedy willingly assumed the Cold Warrior mantle when he became President in 1961. He had campaigned on the pledge to close the supposed “missile gap” with the Soviet Union, and was undeterred when he discovered after becoming President that the United States actually enjoyed a large missile superiority over the Soviets. And although he was personally shaken by the Cuban Missile Crisis in 1962, he continued to promote a larger nuclear stockpile.

2.8 Flexible Response

But Kennedy also reformed American nuclear policy. Unsatisfied with the rigidity of massive retaliation or the horror of mutual assured destruction, the Kennedy administration developed the doctrine of flexible response. Under flexible response, the President would have a wider range of nuclear and conventional military options in response to crises or during time of war—graduated military options, variable target sets, etc. Flexible response, rather than massive retaliation, became the foundation of American nuclear strategy until the late 1970s.

2.9 Safety Concerns

One important set of technical developments during the 1960s pertained to safety. A visit to Europe by members of Congress’s Joint Committee on Atomic Energy in 1961 revealed a concern over unauthorized use. With an increasing number of weapons forward deployed to Europe, the Kennedy administration decided that it was necessary to install greater protective devices on nuclear weapons to prevent their use if they fell into enemy hands. In 1962, Kennedy ordered that all American weapons be equipped with Permissive Action Links (PALs) for this purpose. PALs began as relatively conventional locking mechanisms, and gradually evolved into more complicated encryption devices.

Political pressure for increased safety continued through the 1960s, especially in response to accidents regarding aircraft carrying nuclear weapons at Thule, Greenland, and Palomares, Spain.

2.10 Vietnam and SALT

As president, Lyndon Johnson was much more concerned with issues of domestic policy (civil rights, the Great Society, the War on Poverty, etc.) than with foreign policy. In addition to contributing to the drift into the quagmire of Vietnam, this focus also resulted in relatively minor shifts in nuclear strategy and policy. The increasing size of the Soviet arsenal resulted in (1) a gradual move back to the doctrine of assured destruction in the event of nuclear war, and (2) growing political pressure for arms control.

The war in Vietnam only reinforced these trends, and the 1960s began a series of nuclear arms control agreements between the United States and the Soviet Union. The first was the Limited Test Ban Treaty, concluded by Kennedy in 1963. In 1965, Johnson committed the United States to a Nuclear Non-Proliferation Treaty, which he signed in 1968 but was not ratified until 1970.

Richard Nixon's foreign policy triumphs with Moscow and Beijing resulted in a temporary thaw in Cold War relations known as *détente*. The most important consequences of *détente* for nuclear policy were the Anti-Ballistic Missile Treaty (1972) and the Strategic Arms Limitation Treaty (1972). By the early 1970s, treaties on these issues had become particularly important for both foreign and domestic policy. The technological development of feasible anti-ballistic missiles had by then begun to threaten the stability of nuclear deterrence, and the development of Multiple, Independently-targetable Re-entry Vehicles (or MIRVs, which permitted both sides to put many warheads on a single missile) threatened to cause an enormous acceleration of the arms race.

By the end of the 1960s, the enormous growth in the size of the American nuclear stockpile was clearly slowing. Even with the shift toward larger numbers of tactical weapons, the size of the arsenal, both in megatonnage and number of weapons, was on the decline by 1968.

2.11 The End of the Cold War

In his single term as president, Jimmy Carter stressed the importance of international human rights. As for nuclear matters, his administration focused on securing further arms control agreements with the Soviet Union. These negotiations led to the signing of SALT II, a treaty that was shelved after the Soviet invasion of Afghanistan and never ratified by the U.S. Senate.

Ronald Reagan's reinvigoration of Cold War tension entailed a striking departure from earlier Cold War presidents: open discussion of how the United States could plan to fight, survive, and even win a nuclear war with the Soviet Union. The hard-line language was accompanied by the largest peacetime military build-up in the nation's history. The \$2 trillion defense program included a multitude of new weapons systems, as well as the Strategic Defense Initiative (SDI). Serving the dual purpose of further intimidating Soviet leaders and quelling domestic pressure for a nuclear freeze, SDI proposed to build an anti-ballistic missile shield that would protect the entire nation against nuclear missile attack.

While the results of SDI (dubbed "Star Wars" by its critics) fell far short of its promises, the same could be said of the Soviet Union, which experienced radical reform under Mikhail Gorbachev in the late 1980s and then collapsed completely after a failed coup in 1991. With the demise of the Soviet Union, the Cold War came to an end.